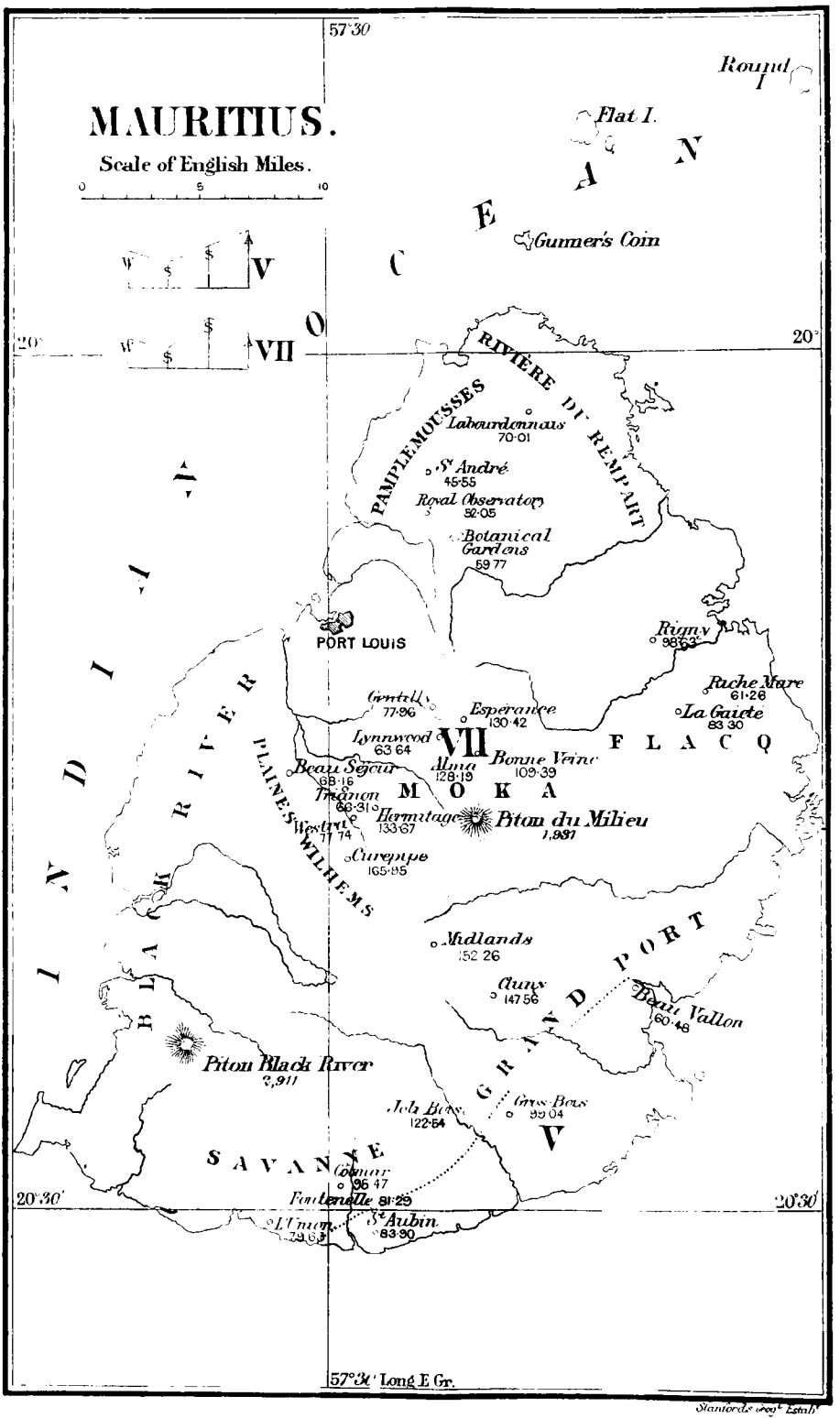
MAURITIUS.
Scale of English Miles.
0
5
10
57°30'
Round I.
Flat I.
INDIAN OCEAN
Gunner's Coin
V
VII
20°
20°30'
RIVIÈRE DU REMPART
PAMPLEMOUSSES
Labourdonnais
70·01
St André
45·55
Royal Observatory
52·05
Botanical Gardens
59·77
PORT LOUIS
Rigny
98·33
Ruche Mare
61·26
La Gaiete
83·30
Esperance
130·42
Lynnwood
63·64
Beau Segeur
68·16
Alma
128·19
Bonne Veine
109·39
Trianon
66·31
Hermitage
Piton du Milieu
1,991
Curepipe
165·95
FLACQ
MOKA
PLAINES WILHEMS
RIVER
INDIAN
BLACK
Midlands
152·26
Curepipe
147·56
Beau Vallon
60·48
GRAND PORT
Piton Black River
2,911
Joli Bois
122·54
Gros Bois
99·04
SAVANNE
Vacoas
96·47
Fontenelle
81·29
L'Union
79·63
St Aubin
83·90
57°30' Long E Gr.
Stanford's Geog.l Estab.t

SYMONS'S

MONTHLY

METEOROLOGICAL MAGAZINE.

CCXXX.] MARCH, 1885. [PRICE FOURPENCE, or 5s. per ann. post free.

THE CLIMATE OF ASSAB.*

The first thing requisite is to state where Assab is. It is a very small place, on a bay of the same name, in the east of Abyssinia, at the southern extremity of the Red Sea, opposite to Mocha and just north of the Straits of Bab-el-Mandeb.

The pamphlet before us is a reprint of a popular article written by Prof. Ragona for the daily journal, *Il Panaro*, and is based upon the observations made daily at 9 a.m., 3 p.m., and 9 p.m. at Assab in 1882 and printed in extenso in Vol. IV. part II. of the Italian *Annali dell' Ufficio centrale di Meteorologia.*

Neither in the *Annali* nor in Prof. Ragona's pamphlet is anything said as to the position of the instruments, but the publication by Sig. Tacchini of the observations implies that it was reasonably good.

The immediate vicinity of Assab has long been considered the hottest region in the world. Massowah which is on the same coast of the Red Sea, but about 300 miles further N.W.† is described by Hann as remarkable for its extraordinary and constant heat. Prof. Rohlfs asserts (but the following table seems to show that his records were too high) that the spring water from depths of 12 ft. to 15 ft., was from 93° to 95°, while the air temperature had reached 129° or even 134°.

We cannot accept the mean temperature (87·1) given by Prof. Ragona since it is $\frac{9+3+9}{3}$ which is obviously a little too high. In the absence of observations at 3 a.m., it is far better to ignore the 3 p.m. readings and take $\frac{9+9}{2}$.

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* *Sul Clima di Assab*, by Prof. Domenico Ragona. Modena, Moneti e Namias, 1885.

† By the bye it is in the same latitude as Khartoum; Massowah and Khartoum being at the W. and E. extremities of the base of an equilateral triangle of which Suakim is the Northern apex.

Unfortunately the minimum thermometer was not recorded after May 6th, consequently its readings cannot be utilized.

However, there still exist data of considerable importance, and we here give the results converted into Fahrenheit degrees; and alongside we give the figures for Aden (which is about 100 miles further East) from Mr. Blanford's *Report on the Meteorology of India*, for 1882.

Shade Temperature at Assab and at Aden, in 1882.

	Assab.						Aden.				
				Mean.	Absolute.				Mean.	Absolute.	
	9 a.m.	3 p.m.	9 .m.	9 & 9.	Max.	min.	8 a.m.	4 p.m.	M. & m.	Max.	min.
	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.
Jan.....	79·7	82·0	79·0	79·3	83·7	70·0	77·5	78·7	77·5	84·5	68·9
Feb.....	80·1	81·7	79·5	79·8	84·2	70·3	77·9	78·9	78·0	86·8	71·4
March...	81·9	84·6	80·8	81·4	88·7	72·5	79·1	80·6	79·6	89·3	71·1
April ...	86·7	89·8	84·2	85·4	95·9	74·5	83·8	86·3	83·8	97·9	72·9
May.....	90·5	92·5	87·3	88·9	101·8	77·9	88·6	90·3	88·2	100·8	74·4
June ...	93·4	95·2	89·8	91·6	100·8	—	89·3	90·3	88·4	97·3	80·6
July.....	95·0	96·1	90·9	93·0	107·2	—	84·9	88·3	85·5	97·9	71·9
Aug. ...	95·5	95·5	91·2	93·3	104·4	—	86·5	87·9	86·1	97·3	72·9
Sept. ...	93·2	94·8	90·7	92·0	98·6	—	88·6	89·6	88·0	98·3	79·8
Oct.....	88·9	91·0	86·5	87·7	95·0	—	86·1	85·6	84·4	96·3	72·7
Nov. ...	83·5	85·5	81·1	82·3	87·8	—	80·2	81·7	79·0	89·8	68·9
Dec. ...	81·0	82·9	79·3	80·2	87·4	—	77·6	78·0	77·1	86·3	67·1
Year.....	87·4	89·2	85·1	86·2	94·6	—	83·3	84·7	82·9	93·5	72·7

Assab is, therefore, hotter by about 3° than even Aden, but this is compensated by the air being dry (mean relative humidity about 52 at Assab, against about 70 at Aden) and this prevents these high temperatures being insupportable; but the nights at Assab are evidently very hot, four consecutive months with 9 p.m. temperatures averaging over 90°, and rarely below 88°, is very serious. At the same time, it must be remembered that the day Maxima, both at Aden and at Assab, are far below what occur in South Australia; for instance, at Adelaide, the first of Mr. Todd's volumes that we take up, gives Maxima in three months of 1879 of 110°·7, 106°·9, and 103°·4 respectively.

WHIRLWIND IN THE COUNTY KILDARE.

About 11.32 a.m. on Monday, February 2nd, 1885, a whirlwind struck the south end of Sherlockstown House, stripping off the slates, and whirling them in the air like so many sheets of paper. The south end of the roof was wrecked. Some of the slates, which were of unusual size (3 ft. 4 in. by 2 ft. 6 in.) and very heavy, were carried more than 120 feet, striking and making holes in other parts of the roof. The Rev. W. Sherlock, who was in the garden at the time, heard the sudden roar of the wind, and saw the slates ripped from the roof in a moment. The whirlwind appears to have been perfectly local, and, after touching the house, did no further damage than to twist off part of the head of an old Scotch fir tree, standing about 200 yards to the north-east.

RAINFALL OF CAPE COLONY.

WE take the earliest opportunity of noticing a very important communication received from Mr. J. G. Gamble, M.Inst.C.E., who has for some years been residing in South Africa, and whose presence as a member of the Cape of Good Hope Meteorological Commission must have materially strengthened that body.

The communication consists merely of seven sheets of lithographs and as they are of foolscap folio size we hope that they are intended, to appear as part of the next report of the commission.

They contain diagrams epitomizing all the best rainfall registers in the Colony; they give for each of 33 stations the average monthly fall, based on the whole of the years observed, which varies from a minimum of five to a maximum of forty-two years. The average period is thirteen years, and 15 of the stations have been in operation for that period or upwards.

The seasonal distribution is entirely opposite in different parts. Near Cape Town the stations show heavy winter rains (May to August), *e.g.*, at Wynberg and Bishop's Court the average for each of those months is about eight inches and for the four summer months (Dec. to March), about one inch. On the other hand, in the extreme east of the Colony, near its frontiers to Basuto Land and Kaffraria, we have at Queenstown and at Aliwal North averages of less than an inch in winter, and of three to five inches in summer.

As regards total fall, the short (five years) average for Pella (Bushmanland) Lat. 29°4′, S., Lon. 19°12′, E. is remarkable. In no month does the average reach half an inch. No rain has ever fallen in November, and the yearly total must be about two inches and a half. On referring to the reports of the Commission, we find the actual values for Pella to be—

Year.....	1878	1879	1880	1881	1882	Average.
Total Rainfall...	1·55 in.	3·92 in.	1·42 in.	3·29 in.	2·66 in.	2·57 in.

On the contrary, at the first mentioned stations Wynberg and Bishop's Court, which are both near Cape Town, the average totals are about 43 and 54 inches respectively.

DISTRIBUTION OF RAIN IN MAURITIUS DURING THE DECADE, 1871–80.

By Prof. V. RAULIN, of Bordeaux.

MAURITIUS is approximately semi-circular in shape, its longer axis lying S.S.W.-N.N.E., and its centre in latitude 20° 15′ S. Like Réunion (or Bourbon), it is a volcanic island, but without any crater in activity; there is a tolerably marked mountainous plateau, but none of the peaks are high, the principal being Piton du Milieu, 1931 feet, and the Piton of the Black River Mountains in the S.W., which reaches 2911 feet.

Dr. C. Meldrum, F.R.S., Director of the Royal Alfred Observatory,

publishes annually the *Results of the Meteorological Observations* made in the Colony, and has been kind enough to furnish me with copies.

Observations during the above decade have been made at sixty stations, but there are only 28 available for the determination of seasonal rainfall; twenty-two extending over from 8 to 10 years, and six from 4 to 7 years.

The *yearly totals* generally range from 80 to 100 inches. The amount is less at three eastern stations, where it falls to 60·48 in., and still less at six stations in the N.W., where it falls as low as 45·55 in. The rain is much heavier in the centre of the Island, and six stations in a line from N. to S. have falls ranging from 128·19 in. to 165·95 in.

The *seasonal distribution* is much more uniform than in Southern India, or at the Cape of Good Hope.

Régime VII. (Winter and summer wet) prevails almost everywhere.

Régime V. (Winter and autumn wet, spring and summer rather dry) is found only at five stations on the south coast.

RAINFALL IN MAURITIUS.

Stations.	Height	Years.	Summ'r.	Aut'mn.	Winter.	Spring.	Year.
RÉGIME VII. *Winter and Summer wet.* (A) East and South Coast.							
	ft.		in.	in.	in.	in.	in.
1. Labourdonnais	280	1871-80 (10)	28·59	23·94	10·59	6·89	70·01
2. Rigny	300?	1873-80 (8)	36·10	32·30	17·59	12·64	98·63
3. Riche Mare	160	1871-80 (10)	22·40	20·49	11·62	6·75	61·26
4. La Gaieté	120?	1871-79 (8)	32·43	27·50	14·28	9·09	83·30
5. Midlands	1420	1873-80 (8)	49·78	49·44	32·61	20·43	152·26
6. Cluny	1000	1871-80 (9)	52·54	46·72	31·25	17·03	147·56
7. Joli Bois	550	1871-80 (10)	41·10	40·96	25·25	15·23	122·54
8. Colmar	700	1871-80 (9¾)	33·70	32·10	17·64	12·03	95·47
9. L'Union	80	1871-80 (10)	28·45	25·81	14·93	10·44	79·63
(B) West Coast and Inland.							
10. Botanical Gardens	215	1871-80 (10)	25·32	20·17	8·47	5·81	59·77
11. St. André	184	1872-80 (9)	18·48	17·10	5·92	4·05	45·55
12. RoyalAlfredObservatory	179	1871-80 (10)	22·18	18·45	6·36	5·06	52·05
13. Hermitage	?	1871-75 (5)	49·26	40·33	28·42	15·66	133·67
14. Bonne Veine	1400	1871-80 (10)	41·64	34·11	20·18	13·46	109·39
15. Alma	1380	1871-80 (9½)	50·37	39·42	23·68	14·72	128·19
16. Espérance	1420	1871-80 (10)	50·66	41·51	23·65	14·60	130·42
17. Gentilly	1200	1871-80 (9½)	34·88	23·71	11·69	7·68	77·96
18. Lynnwood	1080	1876-80 (5)	29·39	19·66	9·38	5·21	63·64
19. Curepipe	1700	1871-77 (4½)	60·31	52·77	35·95	16·92	165·95
20. Westra	1300	1871-80 (10)	30·13	25·27	14·64	7·70	77·74
21. Beau Séjour	970	1871-80 (10)	30·39	23·62	8·45	5·70	68·16
22. Trianon	1000	1871-80 (9¾)	28·56	22·37	9·43	5·95	66·31
23. Dry-Burn*	?	1873-78 (5¼)	31·23	24·72	11·24	7·11	74·30
RÉGIME V. *Winter and Autumn wet, Spring and Summer rather dry.*							
24. Beau Vallon	240	1871-80 (10)	21·32	21·83	10·28	7·05	60·48
25. Gros Bois	500	1871-80 (10)	32·40	34·30	18·92	13·42	99·04
26. Fontenelle	250	1875-80 (6)	26·76	26·87	15·74	11·92	81·29
27. St. Aubin	300?	1871-80 (10)	28·49	29·15	15·08	14·18	83·90
28. Highlands*	?	1874-79 (6½)	29·41	30·36	14·00	8·48	82·25

* The position of these stations being unknown, they are omitted from the map.

ROYAL METEOROLOGICAL SOCIETY.

THE usual Monthly Meeting of this Society was held on Wednesday evening, February 18th, at the Institution of Civil Engineers, Mr. R. H. Scott, F.R.S., President, in the chair. Messrs. H. B. Baker, M.D., S. Dixon, R. Foster, and B. O. Meek, F.L.S., were elected Fellows of the Society. The following papers were read :—

1. "How to detect the anomalies in the annual range of temperature," by Dr. Buys Ballot, Hon. Mem. R.Met.Soc. The author shows that it is most likely that only a long continued series of observations can give evidence of an interruption of rise and fall, especially in localities where the temperature of the same day in different years may differ by 20° C. (36° F.) as at St. Petersburg.

2. "Cloud Observing," by D. W. Barker, F.R.Met.Soc. As there is a great deal of confusion amongst cloud observers, not only as to the particular names of clouds, but more especially with regard to their movements, the author recommends that there should be two simple divisions, viz., "stratiform" and "cumuliform." To the stratiform belong all the higher forms of cloud and a few of the lower ; to the latter belong the typical cumulus cloud always seen in the lower atmosphere. From the result of numerous observations, the author's conclusion is that the actual normal motion of the cirro-filum cloud is along the line of filature, and that knowing the bearing of the V or radiating point, the direction of its motion can be at once inferred. In all cases the author observed the V point first formed in the point from which the cloud is coming, but it will frequently be noticed that threads first appear parallel to a certain point on the horizon, and in all sorts of positions between this and the central V point.

3. "A suggestion for the improvement of radiation thermometers," by W. F. Stanley, F.R. Met.Soc. The author suggests that the radiation thermometer should indicate the amount of heat radiated by the sun upon a metal ball of a certain size, this being an object easy of uniform reproduction by mechanical means. For experiment, he made three hollow copper balls, which were cast with ordinary filed cores, and were of different weights. These balls were turned to exact external diameter of 1·4 in., with similar necks for the insertion of thermometers. The surfaces were oxidised by heating, to resemble the oxidation produced by the atmosphere. Into each of these balls a similar thermometer was inserted, and the neck closed round just sufficiently to keep it steady by cotton thread soaked in paraffin. The three thermometers thus enclosed in the metal balls, when exposed to sunshine and placed at 2 ins. above a piece of black board, appeared to register, under similar conditions, exactly alike. The experiments for three summer months gave from 6° to 11° difference between these instruments in the sun, and the shade temperature.

THE NEW TIME.

To the Editor of the Meteorological Magazine.

SIR,—Having read with interest your article in the January Magazine on the proposed alteration in the method of reckoning time, I trust you will give me leave to state some reasons why it appears to me that the argument on this matter is not all on one side.

In the first place, I would take exception to the assumed fact that the conference at Washington recommended such a change as you advocate. As far as I can gather, the recommendations of the conference were mainly these three, namely—

1. The universal adoption of the meridian of Greenwich as the zero of longitude.

2. The assimilation of the astronomical day to the civil day, by commencing it at midnight instead of at noon.

3. The adoption "for all purposes for which it may be found convenient" of a "universal day," which should be the Greenwich day, and the hours of which should be counted, as those of the astronomical day are at present, from 0 to 24.

I am open to information upon the point, but I have not as yet seen any report of the proceedings of the conference which would lead me to suppose that that body contemplated an interference with social usages in the matter of reckoning time; and there is, I think, some evidence to the contrary. The only reference that I find to the method of counting the hours from 0 to 24 applies to the "universal day." It would be too absurd to suppose that this "universal day" was intended to supersede the local day for civil purposes throughout the world. No one would suppose it likely or possible that the inhabitants of India or of America (for example) would be content to adopt for the ordinary purposes of life a day having no reference to their own hours of light and darkness, of noon and midnight. Moreover, the resolution of the conference provides that the "universal day" "shall not interfere with the use of local or other standard time when desirable;" and as no change was suggested (so far as appears) in the method of counting the hours of the local day, it seems to follow that the innovation now proposed cannot fairly claim the sanction of the Washington conference, and must therefore be discussed simply upon its own merits.

What then are the advantages, and what are the disadvantages, to be expected from the change?

The only definite advantage that I can find in the method of counting the hours of the local day from 0 to 24, is that persons undertaking very long journeys (perhaps, at any given time, one in ten thousand of the population) would be saved a certain small amount of trouble in settling their trains.

Against this advantage I would place two very palpable disadvantages affecting the whole community.

First, the reading of clocks and watches would be rendered greatly more difficult than at present.

Secondly, clocks striking the hours—whether public or domestic clocks—would become so intolerable a nuisance that they would of necessity be abolished.

To my mind, the division of the day of 24 hours into two periods of 12 hours each is a natural and happy device for meeting a serious inconvenience.

One word as to the "universal day." Whether the adoption of such a day would be advantageous in astronomy and in navigation is a question which may be left to be answered by the persons most interested in those pursuits. In meteorology, there may be special inquiries for which simultaneous observations are desirable, but these may be easily secured without a "universal day;" while, with regard to investigations of temperature, it is clear that observations taken at hours having no reference to the local day, would be valueless for purposes of comparison between one place and another. Even in telegraphy, the utility of the "universal day" would, I think, be quite doubtful. True, we have at present the anomaly of messages from the East arriving (so to speak) before they are sent, but I am not aware that there is any real inconvenience in this; and if the paradox should occasionally puzzle the ignorant, so much the better. Such persons will be set thinking and inquiring about the explanation, and knowledge will be increased.

GEORGE F. BURDER.

Clifton, 27th February, 1885.

[We think that Dr. Burder may rest assured that the New Time is dead and buried. We are very sorry, as in spite of the objections raised to it, all which we have carefully considered, we still hold it to be preferable to the double nomenclature. In justice to ourselves, we desire to mention that we should not have adopted either of the courses suggested by Dr. Burder. We should not have approved of altering the angular motion of clock or watch hands, but have allowed the hour hand to make two revolutions per diem as it does now, merely adding an extra ring of figures—13 to 24. Nor should we have advised any such wild scheme as letting a town clock strike 24 strokes. Any one accustomed to the Cambridge chimes of Big Ben will at once see that 13 strokes would be ample, and we should prefer a maximum of 7; variations in tone or interval would soon be learned and far less liable to error than the present plan of counting up to 12.

However, as we have already stated, we believe the scheme to be dead—strangled with red tape, and buried by the astronomers under imaginary difficulties in the use of the Nautical Almanac. But people object to getting out of ruts, and it is so reasonable and so scientific to write 9 a.m. when we mean 3 a.m.—(Put it in English, and the absurdity becomes evident, 9 a.m. = 9 hours before noon, but we mean 3 hours before noon)—that, of course, it would be a pity to give it up.

It is, however, only on a par with the remarkable periods which we call months. There are 12 of them, and there are 365 days to be appropriated to them. One would think that the obvious plan would be to take 30 as the minimum, and add 1 to nearly each alternate month. But what do we do? We give February only 28, and then having 7 to add on, we do so in such irregular order that somebody had to compose a doggrel *mem. tech.* in order to ensure their being added to the right ones. The final result is, that the early months of the year begin about $1\frac{3}{4}$ days too soon, and that instead of having months differing in length by only about 3 per cent., we have between February and its precursor and follower differences of more than 10 per cent. The muddle that this produces in much statistical work can readibly be imagined, and yet we aresure that short "February" will survive for generations happy in the company of our enemies, A.M. and P.M.—ED.]

ON THE FORMATION OF MACKEREL SKY.

BY DR. H. MUIRHEAD.

[Abstract of paper read before the British Association at Montreal].

AT the Glasgow meeting of the Association in 1876, Sir William Thomson read a short note on the formation of mackerel sky.* The author having paid much attention to the various aspects of the congeries of cloudlets so named, has come to the conclusion that the following is the usual mode in which they are generated. Given a thinnish stratum of moist air in process of passing over a drier and cooler body of air, of different velocity or direction. The vapour by cooling will become visible, and from friction the stratum will get rolled into long cylinders. Now let another current of air brush across the cylinders at right angles to their length, or indeed any large angle. This will have the effect of rolling the thinnish stratum into cylinders crossing the first set. And now neither set will appear as long continuous rollers, but from being crossed will show as a congeries of little cloudlets or drums, *i.e.*, mackerel sky.

In favour of this hypothesis it may be noted that if attention be paid to the cloudlets there will often be observed, at one or other extremity of the formation, portions of the cylinders which extend continuously for a considerable length where they have not been divided into drums by a crossing current. Again, if one of the currents moves too rapidly, some of the cloudlets will get so torn by it that they will often show as wisps or mare's tails. Moreover, it may sometimes be observed that when a long slender cloud is sailing end-long across the sky, that a portion of its length gets segmented crosswise so as to show somewhat like the rattles of a snake.

Assuming that the foregoing is the usual mode of formation of this sky from a thinnish vapour-laden stratum, if the wedge does not push inwards in increased volume, the visible vapour will gradually

* See *Met. Mag.*, Vol. XI. (1876), p. 131.

disappear, diffused in the neighbouring drier air, and fair weather probably may follow. If, however, it drive in in largely increased volume, the cloudlets will be lost in the formation of large continuous cloud—a likely harbinger of rain, as we know is often the case in such circumstances.

DRY DATES IN 1884.

To the Editor of the Meteorological Magazine.

SIR,—Mr. J. W. Scott having called attention to the "dry dates" in 1884 in his locality, it may not be uninteresting to mention that I notice a similar coincidence:—16th December ·14 is the only entry for that day; and only two for 17th, May, ·05, and July, ·10. The 6th of the month has been the wettest day, and it was on this day that the heaviest fall of the year occurred. The sum total of the falls on this day is also the largest in the year, but the 5th runs it very close.

Yours truly,

G. H. M. WHISH.

28, Addison Gardens, Kensington, W. February 21, 1885.

SIR,—Your correspondent, Mr. J. W. Scott, will perhaps be interested to learn that at Nottingham also there was an absence of rain on the 16th and 17th of the months in 1884, as shewn in the following table:—

	16th.	17th.		16th.	17th.
January ...	—	·001	July	—	·022
February..	—	—	August.....	—	—
March.....	—	·022	September.	—	—
April	·027	—	October ...	—	—
May.....	—	—	November..	—	·008
June	·019	—	December..	·230	·066

I also notice that the rainfall observations here for the last 45 years shew that every tenth year has been a dry one, as will be seen from the following table:—

Year.	Rainfall at Nottingham.	Relation to mean of 45 years.
1844	20·900	—5·172
1854	17·400	—8·672
1864	17·400	—8·672
1874	18·136	—7·936
1884	20·100	—5·972

I am, yours truly,

FRANK RAYNER, Stud. Inst. C.E.

Nottingham, 12th March, 1885.

[With reference to the dryness of years ending with 4, see *Brit. Rain.*, 1882, p. 18.—ED.]

SCRAPS.

ARTIFICIAL BALL LIGHTNING.—An effect which bears a strong resemblance to ball lightning has been produced by M. Planté with the help of a battery of 16,000 Planté couples, giving an electromotive force of about 40,000 volts on first discharging. He prepared two pads of filter paper moistened with distilled water, and brought them very near together, with, however, a layer of air between, the whole forming an air condenser. The pads were connected to the poles of his battery or accumulators, and he then observed a small globule of fire or mimic lightning moving about between the pads, and sometimes passing from one pad to the other. When a pad became dry at any point the light appeared at some other point, but would reappear at the old place when it was moist again. The likeness to fire balls is very striking; their peculiar wandering character is imitated; and if we suppose the pads of the air condenser to represent the wet earth and a charged cloud, the analogy becomes still more remarkable. If we are not mistaken the late C. F. Varley suggested that ball lightning might be the luminous end of a discharge travelling about on the surface of the earth, and M. Planté's experiment tends to support this view.—*Engineering.*

[Mr. Varley exhibited the phenomenon, December 11th, 1872. See *Jour. Soc. Tel. Engineers*, vol. 1, p. 368.—ED.]

MANUFACTURING RAIN.—The ingenious plan for rain-making proposed by General Ruggles, of Virginia, is in accordance with a theory of rain-formation long held by eminent savans.—[? ED.] The plan is to send up into the moist strata of the atmosphere dynamite cartridges, lodged in balloons, to be exploded by time fuses, or electric wires connected with the earth. The explosion, it is claimed, will have the effect of bringing together masses of air of different temperatures and humidities, causing condensation of the vapour aloft sufficient to produce rain.

[Much has been written on this subject—for instance we remember a pamphlet with the title Cannons and Tempests. It *might* be worth while to collect the literature and examine it.—ED.]

FROZEN GROUND.—A well sunk at Yakoutsk, in Siberia, to the depth of 540ft. disclosed the fact that the ground was permanently frozen to this depth, and probably to the depth of 700 ft. The rate of increase of temperature was 1° in 52 ft.

[We cannot quite follow the argument here. The writer seems to have much understated the total depth frozen if he is correct in taking the increase at 1° in 52 ft. Jakutsk (or Yakoutsk) is probably the coldest large town in the world, and yet sometimes it is hotter there than it ever is at Barbados. Jakutsk is on the Lena in N. lat. 62° 1′, E. lon. 129° 42′ and about 500 feet above sea level. The average temperature of January is —44° F. (76° below freezing) and the average temperature for the whole year is 13°·3 F., or 18°·7 below freezing. On individual occasions the temperature has risen to 101°·8, and it once fell to —79°·6, or 111°·6 below freezing—being far below that usual to Arctic explorers. We, however, have to consider only the mean annual temperature, 13°·3; as this is 18°·7 below freezing, it is evident that if the increase is 1° for 52 ft., unfrozen ground can only occur at the depth of 972 ft., and this seems to us a more probable depth than 700 ft. The extreme heat in summer will, of course, penetrate to some little depth, but probably not more than 40 or 50 ft.—ED.]

CLIMATOLOGICAL TABLE FOR THE BRITISH EMPIRE, JULY, 1884.

STATIONS. (*Those in italics are South of the Equator.*)	Absolute. Maximum. Temp.	Absolute. Maximum. Date.	Absolute. Minimum. Temp.	Absolute. Minimum. Date.	Average. Max.	Average. Min.	Average. Dew Point.	Average. Humidity.	Absolute. Max. in Sun.	Absolute. Min. on Grass.	Total Rain. Depth.	Total Rain. Days.	Aver. Cloud.
	°		°		°	°	°	0–100	°	°	inches		
England, London	86·9	4	42·2	26	74·1	54·4	55·2	75	125·0	35·7	2·46	17	6·3
Malta	94·6	19	63·2	5	83·8	68·8	65·4	70	142·6	...	·00	0	0·5
Mauritius	78·0	4	58·0	20	75·2	63·4	60·0	74	124·7	46·9	1·55	12	4·2
Calcutta	93·0	15	75·6	21	87·6	78·5	78·3	87	160·2	70·7	11·96	24	8·2
Bombay	88·3	5	74·0	26	84·4	77·0	77·2	88	138·6	71·4	25·87	28	9·4
Ceylon, Colombo	86·2	12*	75·0	7	85·2	78·2	73·2	76	140·5	65·8	2·11	11	6·3
Melbourne	64·9	9	29·9	24	55·1	39·4	40·2	79	109·0	24·5	·78	7	6·1
Adelaide	64·8	7	35·2	23	57·2	41·9	40·3	70	124·4	26·5	·51	6	5·1
Wellington	...	...	...	...	...	...	...	...	...	...	...	...	...
Auckland	60·0	9	38·0	23	56·5	46·8	44·1	76	117·0	27·0	2·78	27	5·8
Jamaica, Kingston	91·6	17	72·2	29	88·8	74·1	71·8	73	...	...	·69	...	5·2
Barbados	84·0	24	70·0	26	83·0	73·0	75·3	84	144·0	...	4·21	13	5·0
Toronto	85·6	1	45·1	15	73·7	54·3	54·6	71	142·0	38·5	2·12	15	5·8
New Brunswick, Fredericton	91·0	1	40·1	27	72·8	52·9	55·4	80	...	...	7·83	17	7·3
Manitoba, Winnipeg	79·2	24	37·7	3	69·5	49·6	53·8	76	...	...	1·32	12	6·1
British Columbia, Victoria	72·0	20	43·0	9	...	...	...	...	...	...	·48	5	...

* And 14.

REMARKS, JULY, 1884.

MALTA.—Mean temp. 75°·5; mean hourly velocity of wind 8·1 miles; sea temp. rose from 74° to 83°, and then fell to 77°. The glow after sunset continued.

J. SCOLES.

Mauritius.—Rainfall 1·07 in., and mean temp. 0°·2 below average; mean hourly velocity of wind 2·4 miles below the average, prevailing direction S.E. Unusual colorations of sky before sunrise and after sunset daily, lasting 1 hr. 12 min.

C. MELDRUM, F.R.S.

Melbourne.—Mean temp. of air 1°·1, and of dew point 1°·2 below average. Rainfall 1 inch, and humidity and amount of cloud slightly below average; pressure slightly above the average. Prevailing wind N., strong on 5 days; heavy dew on 9 days; hoar frost on 9 days; ice on 4 days; fog on 7 days. R. L. J. ELLERY, F.R.S.

Adelaide.—Pressure above 30 in. throughout the month, which has only once occurred previously (in June, 1877), the mean being ·166 in. above the average; mean temp. the lowest, and total rainfall the smallest on record for July. The weather was remarkably fine, and the mean amount of cloud 13 per cent. below average.

C. TODD.

Auckland.—Weather showery throughout, and remarkable for the predominance of S.W. and W. winds; total rainfall small, fully 2 inches below average; pressure above and mean temp. below average. T. F. CHEESEMAN.

JAMAICA.—The rainfall for July was much below the average, and drought was severely felt in several places. Prevailing wind S.E. by E., mean hourly velocity 4·3 miles. MAXWELL HALL.

BARBADOS.—Pressure very unsteady and slightly below the average; mean temp. (77°) 0°·3 above average; prevailing wind N.E., mean hourly velocity 12·4 miles, extremes 18·5 miles and 7·7 miles. Rainfall 47 per cent. below average. Seven days were overcast. R. BOWIE WALCOTT.

CLIMATOLOGICAL TABLE FOR THE BRITISH EMPIRE, AUGUST, 1884.

STATIONS. (*Those in italics are South of the Equator.*)	Absolute. Maximum. Temp.	Date.	Minimum. Temp.	Date.	Average. Max.	Min.	Dew Point.	Humidity.	Absolute. Max. in Sun.	Min. on Grass.	TotalRain. Depth.	Days.	Aver. Cloud.
	°		°		°	°	°	0–100	°	°	inches		0–10
England, London	92·0	11	45·7	26	77·1	54·5	52·2	66	125·4	38·7	·89	10	3·6
Malta	91·3	6	64·3	1	85·2	70·6	67·4	73	149·0	...	·00	0	1·0
Mauritius	78·4	12	54·1	22	74·8	62·1	57·3	70	126·4	46·9	·34	8	5·0
Calcutta	90·5	2	75·5	31	87·3	78·2	78·1	87	163·6	71·6	10·97	25	7·9
Bombay	86·7	8	75·0	11	84·6	76·8	76·7	87	143·2	72·5	15·29	28	7·6
Ceylon, Colombo	86·0	31	73·3	30	84·1	77·5	72·9	77	141·5	59·5	1·19	9	6·9
Melbourne	73·0	30	33·0	1	61·5	45·4	42·1	69	120·7	26·2	1·63	13	6·4
Adelaide	81·1	30	40·9	20	64·0	48·1	42·5	63	133·4	33·5	1·09	16	5·9
Wellington	...	...	...	...	...	...	...	...	...	...	...	...	...
Auckland	64·0	28	40·0	5	57·9	48·8	45·6	75	122·0	29·0	5·69	27	7·0
Jamaica	91·1	11*a*	70·8	8	88·4	73·5	72·6	78	...	...	4·79	...	6·4
Barbados	84·0	23	70·0	16	82·0	72·0	75·5	86	144·0	...	7·35	15	6·0
Toronto	89·6	19	44·1	27	75·8	54·7	56·6	72	148·0	37·0	2·12	12	4·2
New Brunswick, Fredericton	85·7	20*b*	40·5	28	77·0	55·3	58·8	80	...	...	4·23	14	5·7
Manitoba, Winnipeg	88·1	13	36·0	23	71.8	50·6	56·4	79	...	...	6·90	15	6·7
British Columbia, Victoria	86·0	2	43·0	15	...	...	...	...	...	...	1·84	8	...

a And 18. *b* And 21.

REMARKS, AUGUST, 1884.

MALTA.—Mean temp. 77°·1; mean hourly velocity of wind 7·5 miles; sea temp. rose from 79° to 82°. L on 27th. J. SCOLES.

Mauritius.—Rainfall 1·35 in., mean temp. 0°·9, and mean hourly velocity of wind 1·8 miles below their respective averages. Prevailing wind S.E. by S. to E.S.E. Prolonged colourations of the sky before sunrise, and after sunset, but not intense. C. MELDRUM, F.R.S.

CALCUTTA.—Rainfall very deficient, especially in the central districts of Bengal, and in a large portion of Behar. J. ELIOT.

Melbourne.—Mean temp. 2°·4 above average; temp. of dew point average; humidity, pressure and rainfall all about the average. Prevailing wind N., strong on 12 days, heavy dew on 3 days, ice on 1 day, L on 3 days. R. L. J. ELLERY, F.R.S.

Adelaide.—The month was very dry, the rainfall being less than half the average; the weather, as a whole, was fine, but cloudy. During the last few days, pressure fluctuated considerably, and gales occurred on 26th and 30th; mean temp. (56°·0), 2° above the average, the max. being the highest in August since 1862. C. TODD.

Auckland.—From 1st to 9th, showery and equally with S.W. winds; heavy R on 13th and 16th; from 18th to end of month S.W. winds and frequent showers. Mean temp. above average, rainfall 1·19 in. above average. T. F. CHEESEMAN.

KINGSTON.—On 20th, 2·64 in. of R fell between 3.30 and 4.30 p.m.; in the lower part of Kingston H fell. Direction of wind S.E., mean hourly velocity 3 miles. MAXWELL HALL.

BARBADOS.—Mean temp. (76°·2) 1°·4 below average. N.E. winds prevailed on 29 days; average velocity 9·7 miles per hour, extremes 16·2 miles, and 5·5 miles, which is 18 per cent. above the average. Rainfall 6 per cent. below the average. Seven days were overcast. R. BOWIE WALCOTT.

SUPPLEMENTARY TABLE OF RAINFALL, FEBRUARY, 1885.

[For the Counties, Latitudes, and Longitudes of most of these Stations, see *Met. Mag.*, Vol. XIV., pp. 10 & 11.]

Div.	STATION.	Total Rain.	Div.	STATION.	Total Rain.
		in.			in.
II.	Dorking, Abinger	3·58	XI.	Rhayader, Nantgwillt..	9·15
,,	Margate, Birchington...	1·95	,,	Carno, Tybrith	6·25
,,	Littlehampton	3·59	,,	Corwen, Rhug	4·54
,,	Hailsham	4·26	,,	Port Madoc	7·52
,,	I. of W., St. Lawrence.	3·34	,,	I. of Man, Douglas	4·16
,,	Alton, Ashdell.....	4·14	XII.	Stoneykirk, Ardwell Ho.	3·01
III.	Winslow, Addington ...	2·67	,,	Melrose, Abbey Gate...	3·54
,,	Oxford, Magdalen Col...	2·67	XIII.	N. Esk Res. [Penicuick]	2·75
,,	Northampton	2·92	XIV.	Ayr, Cassillis House ...	4·35
,,	Cambridge, Beech Ho...	1·45	,,	Glasgow, Queen's Park.	3·60
,,	Wisbech, Bank House..	2·00	XV.	Islay, Gruinart School..	5·85
IV.	Southend	1·90	XVI.	St. Andrews, Newton Bk.	2·86
,,	Harlow, Sheering	2·49	,,	Balquhidder, Stronvar..	13·56
,,	Rendlesham Hall	2·17	,,	Dunkeld, Inver Braan..	5·66
,,	Diss	2·12	,,	Dalnaspidal H.R.S. ...	8·75
,,	Swaffham	2·01	XVII.	Keith H.R.S.	1·84
V.	Salisbury, Alderbury...	3·77	,,	Forres H.R.S.	2·35
,,	Warminster	4·22	XVIII.	Strome Ferry H.R.S....	8·91
,,	Calne, Compton Bassett	3·23	,,	Lochbroom	5·73
,,	Ashburton, Holne Vic..	10·11	,,	Tain, Springfield.....	2·42
,,	Holsworthy, Clawton...	4·25	,,	Loch Shiel, Glenaladale	13·08
,,	Hatherleigh, Winsford.	4·34	,,	Invergarry	10·78
,,	Lynmouth, Glenthorne.	5·59	XIX.	Lairg H.R.S.	...
,,	Probus, Lamellyn	4·99	,,	Forsinard H.R.S.	2·00
,,	Wincanton, Stowell Rec.	3·27	,,	Watten H.R.S.	2·60
,,	Wells, Westbury.....	2·69	XX.	Dunmanway, Coolkelure	10·65
VI.	Bristol, Clifton	3·35	,,	Fermoy, Gas Works ...	5·22
,,	Ross	4·50	,,	Tralee, Castlemorris ...	4·37
,,	Wem, Sansaw Hall.....	2·37	,,	Tipperary, Henry Street	5·21
,,	Cheadle, The Heath Ho.	2·55	,,	Newcastle West	2·57
,,	Worcester, Diglis Lock	2·72	,,	Miltown Malbay.....	3·75
,,	Coventry, Coundon	3·25	,,	Corofin	...
VII.	Melton, Coston	2·35	XXI.	Carlow, Browne's Hill..	3·51
,,	Ketton Hall [Stamford]	2·17	,,	Navan, Balrath	2·72
,,	Horncastle, Bucknall ...	2·30	,,	Mullingar, Belvedere ...	2·68
,,	Mansfield, St. John's St.	3·17	,,	Athlone, Twyford	4·45
VIII.	Macclesfield, The Park.	2·16	XXII.	Galway, Queen's Col....	3·09
,,	Walton-on-the-Hill.....	2·96	,,	Clifden, Kylemore	9·11
,,	Lancaster, South Road.	3·88	,,	Crossmolina, Enniscoe..	5·61
,,	Broughton-in-Furness ..	...	,,	Carrick-on-Shannon ...	2·86
IX.	Wakefield, Stanley Vic.	2·00	XXIII.	Dowra	...
,,	Ripon, Mickley	2·64	,,	Rockcorry.....	3·55
,,	Scarborough.....	1·54	,,	Warrenpoint	4·79
,,	East Layton [Darlington]	1·69	,,	Newtownards	3·22
,,	Middleton, Mickleton..	2·80	,,	Belfast, New Barnsley .	4·05
X.	Haltwhistle, Unthank..	2·32	,,	Cushendun	4·16
,,	Shap, Copy Hill	12·89	,,	Bushmills	4·25
XI.	Llanfrechfa Grange	5·49	,,	Stewartstown	3·39
,,	Llandovery	5·86	,,	Buncrana	3·30
,,	Castle Malgwyn	7·00			

FEBRUARY, 1885.

Div.		STATIONS. [The Roman numerals denote the division of the Annual Tables to which each station belongs.]	RAINFALL. Total Fall.	Difference from average 1870–9	Greatest Fall in 24 hours. Dpth	Date.	Days on which ·01 or more fell.	TEMPERATURE. Max. Deg.	Date	Min. Deg.	Date.	No. of Nights below 32°. In shade.	On grass.
			inches	inches.	in.								
I.	ENGLAND.	London (Camden Square) ...	2·86	+ 1·22	·76	16	18	57·8	12	27·6	21	5	11
II.		Maidstone (Hunton Court)...	2·70	+ 1·08	·43	15*a*	15	...	...	...	...	...	...
,,		Strathfield Turgiss	2·56	+ ·81	·41	15*a*	18	56·1	24	23·3	20	6	14
III.		Hitchin	2·20	+ ·60	·42	16	19	53·0	12	20·0	20	11	...
,,		Banbury	3·12	+ 1·28	·54	4	17	55·0	24	23·5	21	8	...
IV.		Bury St. Edmunds (Culford)	1·98	+ ·21	·47	16	17	56·0	12	20·0	20	10	...
,,		Norwich (Cossey)	2·17	+ ·42	·44	15	14	57·5	12	24·5	21	6	9
V.		Weymouth(LangtonHerring)	3·93	...	·66	26	23	...	...	...	...	...	...
,,		Barnstaple.....	3·94	+ ·75	·59	1	21	60·0	25	28·0	21	...	...
,,		Bodmin	5·58	+ ·71	1·31	1	21	52·0	15*c*	26·0	21	3	9
VI.		Stroud (Upfield)	3·85	+ 1·60	·64	16*b*	18	55·0	12	25·0	20	6	...
,,		ChurchStretton(Woolstaston)	3·73	+ 1·23	·55	1	21	55·0	24	27·0	18	7	9
,,		Tenbury (Orleton)	3·92	+ 1·45	·72	21	17	60·5	24	17·8	21	8	12
VII.		Leicester	2·68	...	·71	16	16	58·5	24	22·0	21	4	17
,,		Boston	1·73	— ·05	·52	16	11	56·0	24	28·0	21	6	...
,,		Grimsby (Killingholme).....	3·03	+ 1·23	·54	16	21	55·0	24	29·0	21	4	...
,,		Hesley Hall [Tickhill].....	2·02	...	·59	16	19	60·0	24	22·0	21	8	...
VIII.		Manchester (Ardwick).....	2·50	+ ·31	·37	1	20	54·0	24	25·0	21	6	...
IX.		Wetherby (Ribston Hall) ...	1·80	— ·35	·30	4	12	...	...	...	...	...	...
,,		Skipton (Arncliffe)	6·72	+ 2·08	·94	8	22	54·0	24	19·0	19	7	...
X.		North Shields	1·00	— ·84	·58	8	13	58·0	24	23·2	19	12	13
,,		Borrowdale (Seathwaite).....	26·05	+14·60	4·62	26	21	49·2	26	22·2	20	3	...
XI.	WALES.	Cardiff (Ely).....	4·19	+ ·53	·68	26	22	...	...	...	...	...	...
,,		Haverfordwest	6·10	+ 1·65	1·35	23	19	54·0	12	23·0	18	6	10
,,		Plinlimmon (Cwmsymlog) ...	5·32	...	·58	23	21	...	...	...	...	...	...
,,		Llandudno.....	2·31	+ ·02	·50	21	20	57·2	24	29·2	21	4	...
XII.		Cargen [Dumfries]	5·42	+ 1·61	·75	2	19	50·0	25*d*	22·8	20	7	...
,,		Jedburgh (Sunnyside).....	1·94	+ ·18	·59	8	13	54·0	27	18·0	20	9	...
XIV.		Douglas Castle (Newmains)	6·07	+ 2·90	·67	2	21	...	...	...		...	...
XV.		Lochgilphead (Kilmory).....	7·41	+ 3·02	1·61	6	20	...	...	...	..	...	...
,,		Oban (Craigvarren)	7·27	...	1·70	6	23	52·0	23	26·0	17	6	...
,,		Mull (Quinish).....	8·00	...	·92	6	23	...	...	...	...	...	...
XVI.		Loch Leven Sluices	4·30	+ 1·34	·80	14	16	...	...	...	...	...	...
,,		Arbroath	2·72	+ ·56	·56	8	14	51·0	12	25·0	18	11	...
XVII.		Braemar	4·26	+ 1·59	·70	22	18	48·0	12*e*	12·0	20	14	23
,,		Aberdeen	3·56	...	·98	8	17	54·0	24	20·0	19	12	...
XVIII		Skye (Sligachan)	16·44	...	2·81	11	18	...	...	...	...	...	...
,,		Culloden	2·93	+ 1·88	...	...	...	55·0	26	14·0	20	13	26
XIX.		Dunrobin	2·05	...	·55	13	10	53·0	26	22·0	20	12	...
,,		Orkney (Sandwick)..... ..	3·63	+ 1·08	·35	6	25	50·8	24	11·1	20	9	15
XX.	IRELAND.	Cork (Blackrock)	7·35	+ 2·76	1·59	21	21	56·0	9	25·0	17*f*	...	...
,,		Dromore Castle	5·87	...	1·00	23	21	56·0	25	30·0	19	...	...
,,		Waterford (Brook Lodge) ...	5·82	...	·83	21	21	52·5	27	22·0	19	5	17
,,		Killaloe	4·70	...	·81	6	22	57·0	27	24·0	19	9	...
XXI.		Portarlington	2·35	+ ·14	·42	6	21	55·0	27	26·0	19	8	...
,,		Dublin (FitzWilliam Square)	2·81	+ ·65	·92	16	19	58·4	26	26·1	19	3	12
XXII.		Ballinasloe	3·20	+ ·69	·77	21	22	55·0	26	22·0	16*g*	14	...
XXIII		Waringstown	4·11	+ 1·86	·88	21	22	59·0	27	20·0	18	15	21
,,		Londonderry (Creggan Res.).	2·81	...	·34	26	22	...	...	...	...	...	..
,,		Omagh (Edenfel)	4·04	+ 1·76	·64	6	20	57·0	26	22·0	18	10	...

a And 16. *b* And 27. *c* And 24, 25. *d* And 27. *e* And 26. *f* And 18. *g* And 19.

+ Shows that the fall was above the average; — that it was below it.

METEOROLOGICAL NOTES ON FEBRUARY.

ABBREVIATIONS.—Bar. for Barometer; Ther. for Thermometer; Max. for Maximum; Min for Minimum; T for Thunder; L for Lightning; T S for Thunderstorm; R for Rain; H for Hail S for Snow.

ENGLAND.

STRATHFIELD TURGISS.—The month passed without affording facilities for early spring sowing, which seemed probable at first. Autumn-sown crops were checked. No S.

BANBURY.—Mean temp. 42°·3; high wind on 4 days, S on 2, H on 2, L on 2.

CULFORD.—The weather was somewhat unsettled; frequent showers with high winds, and some rather sharp frosts.

LANGTON HERRING.—A wet month; fogs and mists very prevalent. Mean temp. 2°·4 above the average of 13 years. Mean pressure below the average.

BODMIN.—Mean temp. 44°·4.

STROUD.—A wet month, with a few bright warm spring days; T and heavy showers on 27th; S.W. gales on 3 days.

WOOLSTASTON.—A wet month. S on 16th. Strong gale on 21st, with S and sleet. Mean temp. 40°·5.

ORLETON.—A very changeable stormy month, with frequent heavy falls of R, but S only on 16th, when the ground was covered for a few hours. Pressure low throughout the month; mean temp. about 2° above the average. There were many frosty mornings, and a few bright and warm days, but the sky was generally obscured by clouds.

KILLINGHOLME.—A seasonable month; vegetation fairly forward. Springs began to rise, but unless the rains continue, water will be scarce in the summer.

MANCHESTER.—A very unsettled month, but there was comparatively little frost. S fell on 18th, but did not remain long, and on the same date, a sharp clap of T was heard, and vivid flashes of L were seen.

WALES.

HAVERFORDWEST.—A storm of R with L, accompanied by very low pressure, and remarkably high spring-tides, ushered in February, succeeded by a fortnight of cold, frosty weather; the remainder of the month was wet and stormy, with some very cold days. As a whole the season is early. Precelly range covered with S on 4th; very stormy with L and H on 6th; tremendous gale, lasting two hours, on 8th. Primroses and daffodils in bloom at the close of the month.

LLANDUDNO.—A dull and showery month, but on the whole, mild, the mean temp. being fully 1° above the average. Though the rainfall was little above the average, there were 20 wet days, the average being only 15. The mean daily and the total range of temp. were about the average, and although there were four nights of frost, no damage was done to tender plants.

SCOTLAND.

CARGEN.—A wet and stormy month; mean temp. 40°·5, slightly above the average; mean pressure unusually low. Sunshine only 60 hours, the average being 90 hours.

JEDBURGH.—The weather was generally pleasant and mild, birds singing freely. Snowdrops in full bloom, and spring flowers generally forward. From 14th to 21st it was cold though dry. High wind, with slight S on the 21st.

OBAN.—A seasonable and stormy month, with R on most days. S on the 18th, 19th and 21st, with very heavy gale on the latter day.

ABERDEEN.—Rainfall about an inch above the average. Prevailing wind S.W., except on the 6th, when it was S.S.E. On the 21st, a violent southerly gale occurred, which continued during the night, and till afternoon of the following day; it was observed that, with one exception, all the public clocks in the town were stopped, the hands pointing between 1.30 and 2 a.m. of Sunday, the 22nd, when the wind attained its maximum force. Hoar frost on 4 days. S on 2.

CULLODEN.—Frost prevailed all through the month, and the temp. was very low. On the nights of the 16th and 18th there was a slight covering of S on the ground. Field labour nsiderably in arrear.

IRELAND.

DROMORE.—The month was rather wet, and sometimes stormy, especially about the middle of the month.

WATERFORD.—Rainfall 1·30 in. above the average of ten years. Very high tides on the 1st. Gales on 2nd, 6th and 21st. L on 2nd and 7th. H on 4th and 7th. S on 8th and 16th.

KILLALOE.—Heavy R frequent, especially at night. Mean temp. (41°·6), below the average. Severe gale on 21st.

DUBLIN.—Although the mean temp. closely corresponded with the average, the weather was very changeable, alternate periods of cold and warmth prevailing in alternate weeks. The rainfall and rainy days were both above the average, and pressure considerably below it. Mean temp. 42°·7; mean humidity 83; mean amount of cloud 5·4; prevailing winds S.S.W. and S.W. S, sleet and H on the 17th and 18th; solar halo on 12th, lunar rainbow on 21st; fog on the 15th; gales, or high winds, on several days.

WARINGSTOWN —A very wet month.

EDENFEL.—A seasonable month. S on the 18th.

EUROPE.*

IN the *Meteorological Magazine* for February, 1879, we remarked of the first volume of Stanford's Compendium (Africa):—

"It is really a condensation of nearly all the books of travels ever written, a labour so vast that it may well originally have come from Germany, but it does not read like a translation, nor has it the heaviness which the mass of information contained in it would imply. Reading it is like listening to the personal narrative of an educated man who has himself made all the journeyings "Across the Dark Country" from the fifteenth century to the present time. If the rest of the series are as interesting as is Africa, we consider that a valuable addition will have been made to English literature."

The series is now complete—Africa (1878), Central America, West Indies and South America (1878, and second edition 1882), Australasia (1879, and fourth edition 1884), Asia (1882), North America (1883), and lastly Europe (1885)—and looking through the whole we are glad to say that the high level taken in Africa has been fully maintained in all the subsequent volumes.

It is a strong statement to say that the work has no equal in the English language, but we defy anyone to quote a better description of the world and its inhabitants. And even if we dissect it and take the separate subjects of geography, geology, meteorology, anthropology, fauna and flora, we know of no work with which this series would compare unfavourably.

Take, for instance, the last volume, Europe. What is the best rainfall map of Europe? Krümmel's, of which no English reproduction existed, but it is here facing page 34, and superposed upon it are the latest and best isotherms for January and July, those given by Teisserenc de Bort in the *Annales* of the *Bureau Météor. de France.* Nor is the excellence confined to the maps, though all are good and some of them are very fine (for instance the geological map of Europe is printed in *fourteen colours*) but the text is equally good.

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* *Stanford's Compendium of Geography and Travel*, based on Hellwald's "Die Erde und ihre Volker,"—*Europe*, by F. W. Rudler, F.G.S., and Geo. G. Chisholm, B.Sc. Edited by Sir Andrew C. Ramsay, LL.D., F.R.S., with Ethnological Appendix by A. H. Keane, M.A.I. Maps and Illustrations. London: Edward Stanford. 1885.